

ELF NORGE A/S
Exploration Division

Geological Note on the Well

11/9-1

WELLFILE

Dispatching: Div. II 2
 DEGEN 1

 FI 1
 Production 3
 Exploration 2
 Partners

Stavanger, 10th March 1976

Y. GALY

S U M M A R Y

- 11/9-1 is the second exploration well on licence 009 after Njord 10/8-1 which was stopped in the Zechstein salt.

It was located near the top of a saliferous structure in order to explore the whole triassic serie in the most favourable structural position.

- Objective was the basal triassic sands which were expected to be overlaid by thick carbonaceous shales.

- rig:	Deep Sea Driller
location:	06° 44' 52,6" E
	57° 17' 33,2" N
	SP 108 line 79/57-16
spudded:	14.01.76
start drilling:	17.01.76
at TD:	25.02.76
completed:	28.02.76

- Status - plugged and abandoned as a dry hole after having encountered the salt at 1930 m (TD - 1972 m).

R E S U L T S

1/ Stratigraphy (see enclosed fiche 1/5000)

Drilling probably started in the Triassic
Red sandstones and variegated shales are making up the thickest Triassic interval ever drilled in this area (1915 m)

Correlations with 10/8-1 could be:

<u>11/9-1</u>	<u>10/8-1</u>
1930 m	2865 m
1610 m	2568 m
1136 m	2019 m

Consequently the upper part of the Triassic could be present on the 11/9-1 unlike 10/8-1 in which it would be either not deposited or eroded.

No significant change in the Triassic sedimentation has been observed. Restricted marine shales rich in carbonaceous material expected in the Bunter together with Kupferschiefer sandstones were not found.

2/ Structural

The deep marker mapped on the block 11/9 was correlated with quartzitic levels of lower Keuper age prognosed around 1480 m. Salt was expected some 500 m below.

This marker proves to be the salt itself and was reached at 1905 m. The origine of this difference has to be found in the velocity of the Triassic section - 3600 m/s against 2800 m/s used for the prognosis - this abnormally high velocity being related to an intensive cementation of the sandstones mostly on the upper part.

3/ Reservoirs - Fluids

No shows were recorded during drilling and the different reservoirs are waterbearing from the logs.

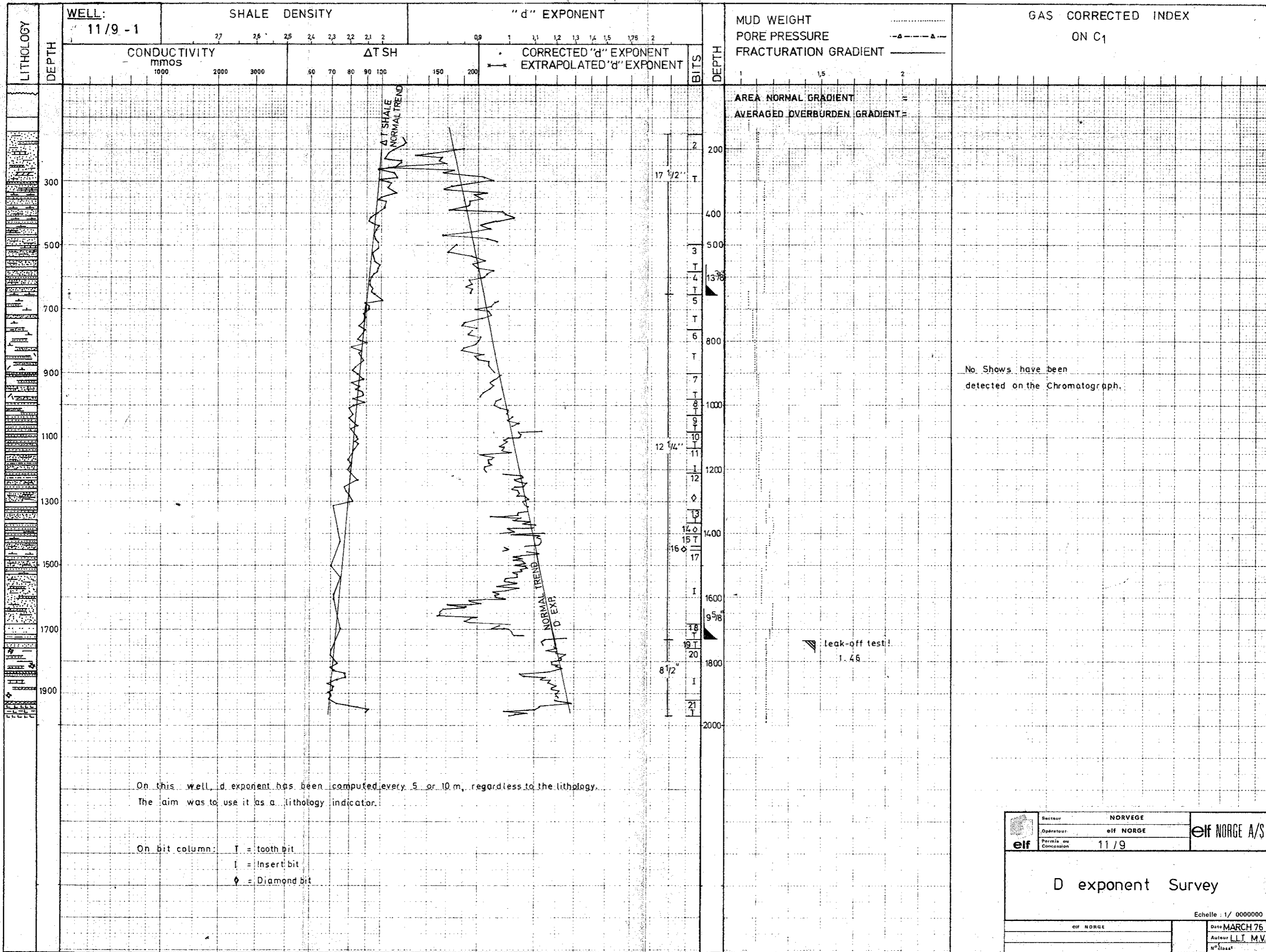
C O N C L U S I O N

The Triassic on the 11/9-1 exhibits reservoirs as usually but probably not sealing intervals and moreover no potential source rocks since the evolution towards shaly organic facies in the Bunter was not confirmed by the facts.

The results of the 11/9-1 underline definitively the poor interest of the Triassic in that part of the Norwegian offshore and condemn the block 11/9 in its whole.

A P P E N D I X

- 1/ Fiche 1/5000
- 2/ "d" exponent survey



On this well, d exponent has been computed every 5 or 10 m, regardless to the lithology. The aim was to use it as a lithology indicator.

On bit column: T = tooth bit
I = Insert bit
◇ = Diamond bit

elf	Secteur	NORVEGE	elf NORGE A/S
	Operateur	elf NORGE	
	Permis ou Concession	11/9	
D exponent Survey			
Echelle : 1/ 0000000			
elf NORGE		Date	MARCH 76
		Auteur	LLT M.V.
		N° classé	

FROM DAILY REPORTS AND ELECTRICAL LOGS.

Coord x 06°44'52,6" E Z ground - 73 y 57°16'33,2" N Z RKB + 25 pt.108 of line 69/5716. Depths datum R.K.B. Rig Deep Sea Driller Stopped in Zechstein		Spudded 16.01.76 Started drilling 17.01.76 At TD 24.02.76 Completed 28.02.76 TD Driller 1972 m TD Logger 1967 m		Well 11/9-1 Country Norway off-shore	
OPERATOR ELF NORGE A/S		LICENCE 009	OWNED BY PETRONORD		
TARGETS Brockelshiefer Sandstones. Cap Rock of the salt dome.		RESULTS Dry well, plugged and abandoned.			
CASINGS	CORES				
30" 145 m 13 3/8" 653 m 9 5/8" 1718 m	SWC1 737 - 1725 23/30 SWC2 1962 - 1732 17/30				
SHOWS					
NONE					
TESTS	LOGS		INTERPRETATION		
	BHC/ GR 655 - 145 1 BHC/ GR 1726 - 653 2 IES 1726,7 - 653 4 BHC/ GR 1964 - 1718 3 IES-PS 1963,5 - 1718 2 HDT 1963 - 1718 1 CBL 1718 - 300 1				

Checked **01.03.76**

By **L.L.T.**

FROM DAILY REPORTS AND ELECTRICAL LOGS

Depths E v +	Litho- section	Formations	Stages Shows	Descriptions Obs	Deviation	Z RKB +25m		Well 11/9-1	
						Z	Ground or Sea bottom -73m		
				25m Sea level					192m
200				98m Sea bed		4000		<u>Sd</u> , a/a. w/stgs of <u>Sdst</u> , wh crm to lt brn, fri. f. grn, abund calc. cmt. some intbds <u>Sh</u> and <u>Slst</u> .	5° 1214m 5°
400		30° 145m		Drilling without returns	48m 0°	4200			1273m 53¼°
600				<u>Sd</u> , yllwsh and transl. to wht, f. to md gr., r. crse gr., ang. on top, bcg sbdr to w. rd, thinly intbbed w/ <u>Sdst</u> , wht to rd, hd to md hd, calc-limon. cmt. <u>Sh</u> , grn whitish, calc., <u>Cly</u> , rd, sft, calc., r. stgs <u>Lmst</u> and <u>Dol.</u> , brn-rdsh, hd, argill.		4400			1321m 6°
800				thin intbds a.a., <u>Cly</u> and <u>Sh</u> bcg <u>Mrl</u> , sft, plastic, some heter. <u>Sdst</u> .		4600		<u>Sdst</u> , dk rd-brn, f. to md gr., ang- gr. porous, arg.-sil cmt, loc. wh calc. <u>Sdst</u> intbds <u>Sh</u> and <u>Slst</u> . <u>Sh</u> , a/a. w/ intbds <u>Sh</u> / <u>Mrl</u> , ochre, sft, plastic, sdy, stgs of <u>Sdst</u> a/a.	1369m 6°
1000						4800			1442m 53¼°
1200						5000			
1400						5200			
1600				<u>Mrl</u> , grading back to <u>Cly</u> / <u>Sh</u> .	410m 1¼°	5400			
1800				tr. grn <u>Sdst</u> , md gr., w. sort.	488m 3¼°	5600			
2000				<u>Sh</u> , bcg firmer		5800	9½° 1718m	<u>Cly</u> , brn-rd, sft, v. slty, sdy, loc. stgs of <u>Dol</u> , ylw, argill.	1727m 4¼° 1752m 3½°
2200		13° 653m		<u>Mrl</u> , ochre rd-brnsh (loc. v. calc. <u>Sh</u>) sft, sticky loc. slty, w/ stgs. <u>Sdst</u> , dk gry, brnsh, f. to md, loc. mic., calc. cmtd.	580m 2½°	6000		<u>Cly</u> , a/a. bcg ochre, w/ int. <u>Sdst</u> , dk-brn, ang., sil-arg. cmt, loc. intbds <u>Sh</u> / <u>Slst</u> , brn, md hd, micmic. non calc. after 1828 m, tr. Anhydr. gry, transl.	1850m 3½°
2400				Calcimetry decreasing: <u>Sh</u> , a/a.	663m 2¼°	6200			1920m 6½°
2600				stgs <u>Lmst</u> , lt gry-wh, mdst, sft, slty, arg.	760m 2¼°	6400		Anhydr. wh, sft, pasty <u>Salt</u> , massive, gry to pink. <u>Sh</u> , dk rd-brn, sft, plast, w/gr. of <u>Salt</u> , <u>Potash Salt</u> and <u>Gypsum</u> .	
2800				<u>Slst</u> , brnsh, hd w/ silic. elements.	862m 3°	6600			
3000				Tr. <u>Tuff</u> gry, sft, black pig- mented.		6800			
3200				<u>Cly</u> / <u>Volc. ash</u> , wh, sft.	976m 1½°	7000			
3400						7200			
3600				<u>Sdst</u> , dk brn, v. f. to f. mnly con- sol, loc. fri, mic. occ. pyr. w/ some blk min., arg. calc., cmt w/ int- bds <u>Cly</u> , brn.	1030m 4¼° 1079m 4¼°	7400			
3800				<u>Slst</u> , brn to rd, v. sft, arg. sl. calc. <u>Sd</u> , f. to md, subang to ang transf. to opaque.	1137m 4½°	7600			

T R I A S S I C

NECH
NECH
STEIN